

## Particle Image Velocimetry (PIV) Systems

- Measurement Attributes:
  - Instantaneous ( $\approx 10^{-8}$  sec) capture of full-field data
  - Amenable to large fields of view
  - Multiple views (i.e. stereoscopic) permits resolution of all three vector components

⇒ Useful for capturing transient phenomena, and for assessing spatial structures and correlations
- Development Approach:
  - Emphasis on robust, efficient software analysis tools with graphical user interfaces
  - Hybrid, fuzzy logic based algorithms combine particle tracking and correlation-based processing
    - »» Maximizes accuracy and tolerance to seeding density; minimizes spurious errors and processing time
  - High NA collection optics and accurate calibration techniques to minimize laser strength requirements
    - »» Experiments in progress to validate signal scaling analyses for source selection

